
NOAA's National Sea Grant College Program

Selected Recent Accomplishments

NOAA Sea Grant is a nationwide network of 30 university-based programs that partner with coastal communities. NOAA Sea Grant conducts research, extension, education, and communications to achieve a sustainable environment and to encourage the responsible use of America's coastal, ocean, and Great Lakes resources. Sea Grant resides within the Ecosystem Goal Team (EGT) and serves as a unifying mechanism within NOAA to engage top universities in meeting NOAA's mission across all goals.

The following Sea Grant program accomplishments helped the EGT reach the Performance Objectives of the Ecosystem Mission Goal within NOAA's Strategic Plan.

1. NOAA Performance Objective: Increase number of fish stocks managed at sustainable levels

- **Sea Grant protects and replenishes abalone:** California's commercial abalone fisheries were closed in 1997 due to severe depletions of all harvested species. Culturing techniques developed by Sea Grant make it possible to rear young abalone for release into the wild. Today, NOAA Fisheries use this to help prevent white abalone's extinction. The pioneering techniques may also prove useful in helping restore populations of another endangered native abalone species, the black abalone. Sea Grant also developed an oral antibiotic treatment that protects farmed abalone from the withering syndrome—a "wasting" disease that ruined \$1.5 million worth of product during the 1997-98 El Nino. This antibiotic may also be used to treat disease in wild populations. (*CA SG Prog. assesment 2003*)
- **Sea Grant discovers and describes a new shell disease in the American Lobster:** Sea Grant researchers identified that massive lobster die-offs in Long Island Sound are likely a result of warmer water temperatures, low oxygen levels, and related stresses, not necessarily a direct result of pesticide loading as previously thought. These results have strong implication for the agricultural industry and the Lobster industry on Long Island Sounds, an industry that lands roughly \$30 million in dockside value yearly. (*NY SG 2004 Annual Report*)
- **Antibiotics discovered in striped bass:** Sea Grant discovered a new family of antibiotics in farm raised hybrid striped bass. The antibiotics, named *piscidins*, were isolated from mast cells—the most common tissue immune cell found in fish and other vertebrates, including humans. The discovery may have implications for treating diseases in both humans and fish. (*NC SG 2003 Prog. assesment*)
- **Sea Grant builds fish habitat:** Sea Grant is rehabilitating the state-list threatened Lake Sturgeon by building spawning reefs in the Detroit River. Multiple species of sturgeon are on the federal Endangered Species List. (*MI SG Prog. assesment 2004*)

2. NOAA Performance Objective: Increase portion of population that is knowledgeable of, and acting as stewards for, coastal and marine ecosystem issues (outreach)

- **Sea Grant outreach project changes behavior:** Sea Grant conducted an aquatic invasive species (AIS) survey in the Great Lakes to assess and improve the effectiveness of invasive

species boater education. The survey demonstrated that public education significantly changes boater behavior, and prevents and slows the spread of AIS. This finding has helped many states, provinces and task forces justify expending limited resources for AIS boater education, because results show a return on this investment. The survey also identified the best methods to reach boaters and change their behavior. Five states have agreed to adopt the findings of the survey and additional are already planning to adapt the survey for their use. Working from the existing survey will save roughly 70% of the overall survey costs for the sponsoring organization. *(MN SG Prog. assesment2003)*

- **Sea Grant saves taxpayers money in beach cleanup:** The annual Beach Sweep/River Sweep litter cleanup program saved taxpayers \$120,000. Organized by South Carolina Sea Grant, the event is funded by private donations. Over the past 14 years, more than 75,000 volunteers have collected 728 tons of trash and have saved state taxpayers more than \$1.6 million. The sweep helps pinpoint sources of aquatic debris—volunteers log their findings on data cards that are included in an international database of marine debris. *(SC SG 2003 Prog. assesment)*
- **Sea Grant partners to teach prevention of aquatic invasives:** In response to the Ocean Commission Report, the Great Lakes regional network, in partnership with the pet industry and the U.S. Fish and Wildlife Service, have launched a major public education and outreach effort called “Habitattitude” to prevent the release of non-native plants and animals. *(MN SG Annual Report 2004)*
- **Great Lakes stewardship education program reaches thousands:** Sea Grant's Great Lakes Education Program (GLEP) has reached more than 45,000 Detroit area students. The program's combination of classroom and hands-on learning helps students value freshwater resources and prepare for their roles as future decision-makers *(MI SG Prog. Assessment 2004)*

3. NOAA Performance Objective: Increase number of coastal communities incorporating ecosystem and sustainable development principles into planning and management

- **Sea Grant develops Aquidneck Island partnership:** Sea Grant and the University of Rhode Island Coastal Resources Center (Sea Grant/CRC) created the Aquidneck Island Partnership, a collaborative of local organizations to preserve the island's character while nurturing a healthy environment and economy. Sea Grant/CRC's efforts secured \$900,000 for the Aquidneck Island Planning Commission to conduct regional planning, and develop a master plan for sustainable redevelopment. Renew America and the National Awards Council for Environmental Sustainability honored this work. *(RI SG 2003 Prog. assesment)*
- **Sea Grant mobilizes residents to develop regional fisheries management:** Nine multicultural towns on the west side of the island of Hawaii created a Regional Fisheries Management Area (RFMA) focusing on community-based marine resource management as a result of Sea Grant outreach. *(HI SG 2003 Prog. assesment)*
- **Coastal Alabama Clean Water Partnership:** Sea Grant and the Mobile County Soil and Water Conservation District formed the Coastal Alabama Clean Water Partnership (CACWP), part of the larger Alabama Clean Water Partnership effort. The Partnership installed permeable concrete storm runoff collection devices in Fairhope, Alabama; and developed innovative waste management techniques for the city of Mobile's drinking water. *(MS-AL SG 2003 Prog. assesment)*

4. NOAA Performance Objective: Increase number of regional coastal and marine ecosystems delineated with approved indicators of ecological health and socioeconomic benefits that are monitored and understood

- **Sea Grant seeds small businesses and creates jobs:** Sea Grant has contributed to the founding or operation of eight pearl farms, four demonstration and training pearl hatcheries, 15 giant clam farms (including the largest commercial giant clam aquaculture venture in the Pacific) and 20 sponge farms (Micronesia is the only area that farms sponges). Overall, the number of aquaculture enterprises in the Hawaiian Islands has reached 126 farms valued at \$25.2 million dollars, which translates into approximately 630 jobs. *(HI SG 2003 Prog. assesment)*
- **Sea Grant traces organic contaminants from the White's Point Outfall Effluent:** Using radioisotope data Sea Grant researchers have found concentrations of DDT and PCBs in the water column off White's Point that are 100 to 1000-fold higher than the current limiting concentrations for effluents. Their methods have been adopted by the Southern California Coastal Water Research Project (SCCWRP) and the Department of Earth Sciences at USC, resulting in a total of approximately 155 person hours saved per month (equivalent of one full-time employee). *(USC SG 2003 Prog. assesment)*
- **Controlling ruffe with pheromones:** Sea Grant researchers have provided the first insight into the reproductive hormones and pheromones of Eurasian ruffe, opening a potential means of managing this invasive fish using pheromonal attractants. Researchers discovered that the urine of female ruffe approaching ovulation contains a pherom, 20b-S, which influences the behavior of male ruffe. Because little is known about ruffe pheromones, this research could advance fisheries management, enabling ruffe to be controlled using combinations of pheromonal repellants and lures. Eventually, as a result of this work, researchers may be able to develop new, non-toxic, species-specific ways to manage these and other invasive Great Lakes fishes. The U.S. Geological Survey estimates 4.4 million ruffe spawned in the harbor last spring. *(MN SG news release 12/14/04)*

The following Sea Grant program accomplishments helped the Weather and Water Goal team reach the Performance Objectives of the Weather and Water Mission Goal within NOAA's Strategic Plan.

1. NOAA Performance Objective: Increase application and accessibility of weather and water information as the foundation for creating and leveraging public (i.e., Federal, state, local, tribal), private and academic partnerships.

- **Sea Grant provides fishing industry with up-to-the-minute information:** In collaboration with NOAA's Great Lakes Environmental Laboratory (GLERL), Sea Grant developed the successful CoastWatch web site, with up-to-date surface water temperatures for all Great Lakes. The lake, regional, and port image charts are updated four times daily and help recreational and industrial anglers save fuel by pinpointing likely areas for fishing. Nearly 808,000 Great Lakes surface water temperature images were downloaded from the site during six months of the 2003 fishing season. *(MI SG 2003 Prog. assesment)*

- **Sea Grant partners to prevent drownings:** Sea Grant partnered with NOAA's National Weather Service and the U.S. Lifesaving Association to initiate a comprehensive, national rip current safety awareness campaign (rip currents are the primary cause of distress in over 80 percent of rescues performed by surf beach lifeguards). The task force has produced a comprehensive public education campaign, including a national brochure, beach signs (which are being widely disseminated nationwide, and are also available in Spanish), a public service announcement, and a new website: www.ripcurrents.noaa.gov with current information. (*DE SG Annual Report 2004*)
- **Sea Grant transfers research to operations:** During hurricane Isabel, Sea Grant designed and deployed portable wind towers for immediate use by NOAA's National Weather Service. (*SC SG Prog. assesment 2004*)